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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,692	03/21/2001	Yutaka Shimizu	2500.65339	3442

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EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/813,692

Applicant(s)

SHIMIZU ET AL.

Examiner

Nikolas J. Uhlir

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 6, 11, 12, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-6, 11-12, and 14-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response the amendment /request for continued examination (RCE) dated 03/01/2004. Applicant's amendment is sufficient to overcome the previous grounds of rejection. Accordingly, the previous grounds of rejection are withdrawn. However, the case is not in condition for allowance in view of the new grounds of rejection set forth below.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 5-6, 11-12, and 14-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 11, upon which all of the other claims are dependant, requires the limitation: "a compound existing on the antiferromagnetic bonding layer." The language "existing on the antiferromagnetic bonding layer" is open language, and does not require the compound layer to be deposited "directly on," or "directly adjacent to," the antiferromagnetic bonding layer. Further, the "existing on" language is open to embodiment where the compound layer exists above the second pinned ferromagnetic layer. However, support for embodiments where the compound layer exists above the 2nd pinned magnetic

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layer are not supported by the claims or specification as originally filed. Rather, the specification/claims as originally filed only support embodiments where the compound layer exists between the antiferromagnetic layer and the 2nd pinned magnetic layer (in other words, the compound layer in all embodiments is above the antiferromagnetic layer but below the second pinned magnetic layer). Accordingly, the language "a compound existing on the antiferromagnetic bonding layer" is new matter. Correction is required.

The applicant is respectfully directed to the examiner's note below.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In both claims 1 and 11, it is unclear between which two layers the claimed base interfacial roughness and [second] interfacial roughness is formed. This is particularly problematic in claim 11, where the applicant only requires a single layer to have an interfacial roughness. Between which two layers is the interface formed? Clarification is requested. The applicant is directed to the examiners note below.

***Examiner's Note***

6. Without wishing to direct the applicant in any way, the examiner respectfully requests the applicant consider the following suggestions when considering how to overcome the above 35 U.S.C 112 rejections.

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7. First, regarding the 35 U.S.C 112 first paragraph rejection. This rejection is likely to be overcome if the applicant inserts language into claims 1 and 11 that specifies that the compound layer exists between the antiferromagnetic layer and the 2nd pinned magnetic layer. This limitation would be commensurate in scope with the specification as originally filed, as shown by page 3, paragraph 1.

8. Second, regarding the 35 U.S.C 112 second paragraph rejection. The rejection of claim 1 as indefinite is easily overcome simply by clarifying the claim language. Namely, claim 1 would be greatly clarified if the applicant were to specify between which two layers the base interfacial roughness occurs and between which two layers the "an interfacial roughness" occurs. Further, if the applicant were to rename "base interfacial roughness" and "an interfacial roughness" to "first interfacial roughness" and "second interfacial roughness" respectively, the claim would be clearer.

9. The rejection of claim 11 as indefinite is less easily overcome. The primary issue with claim 11 is that any given layer (except the uppermost layer which has an air bearing surface) in a multilayer stack has at least two interfacial surfaces (upper and lower) where the layer contacts with another adjacent layer. The reason claim 11 is indefinite is that it requires a "base interfacial roughness" and "an interfacial roughness," but does not specify between which two layers the interfacial roughness occurs. If the applicant were to insert language into claim 11 specifying between which two layers the "base interfacial roughness" and "an interfacial roughness" occurs, the rejection would likely be overcome. The examiner further requests the applicant once again consider

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renaming "base interfacial roughness" and "an interfacial roughness" to "first interfacial roughness" and "second interfacial roughness" respectively.

10. If the applicant's representative would like to discuss these suggestions or any other proposed modifications, he is cordially invited to contact the examiner at his convenience.

### ***Response to Arguments***

11. The arguments dated 3/01/2004 have been fully considered but are moot in view of the new grounds of rejection. Specifically, the arguments are directed to grounds of rejection that are no longer maintained by the examiner.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 571-272-1517. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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